

2021

1. A valve apparatus for deploying in, and securing to, a tissue annulus, said valve comprising:
 - a uni-directional valve portion for passing fluid in one direction and obstructing fluid in an opposite direction;
 - a connector band located circumferentially around, and attached to, said valve portion; and
 - a plurality of fingers located circumferentially around, and attached to, said band, said fingers being adapted to secure said valve to said tissue annulus.
2. The valve of claim 1, wherein said fingers are adapted to secure said valve to said tissue annulus upon expansion of said band.
3. The valve of claim 1, wherein said fingers can be expanded from a first position adjacent to said band, engaged to said tissue annulus, and returned to said first position following said engagement, thereby securing said band to said tissue annulus.
4. The valve of claim 1, wherein said fingers are formed from an elastic material.
5. The valve of claim 1, wherein said band comprises a gasket located around an outer circumference of said band, said gasket for sealing between said band and said tissue annulus.
6. The valve of claim 1, wherein said fingers are hooked.

~~72~~
s are ba

8. The valve of claim 1, wherein said
re barbed and hooked.

9. The valve of claim 1, wherein said
re substantially parallel to a central
nal axis of said band.

the valve
stantially
of said

11. The valve of claim 1, wherein said band is adjustable.

12. A method for attaching a uni-directional
a tissue annulus, said valve having a
band attached circumferentially around said
aid band having fingers attached
entially around said band, said method
g:

positioning said uni-directional valve
nulus; and

engaging said fingers to said annulus
fingers secure said valve to said
ch that said valve controls the flow of
said annulus.

13. The method of claim 12 the engaging
comprising engaging such that said valve
substantially only uni-directional flow through
plus.

14. The method of claim 12 wherein said positioning comprises expanding said valve such that said valve substantially fills said annulus and wherein said expanding occurs before said engaging.

15. The method of claim 12 wherein said positioning comprises expanding said valve such that said valve substantially fills said annulus and wherein said expanding occurs before said engaging.

16. The method of claim 12 wherein said engaging is caused by expanding said valve such that said valve substantially fills said annulus.

17. The method of claim 12 wherein said engaging further comprises expanding said fingers for engaging said fingers to said annulus.

18. The method of claim 12 wherein said engaging further comprises expanding said fingers and rotating said valve to engage said fingers to said annulus.

19. The method of claim 12 wherein said engaging said fingers to said annulus comprises repeatedly pulling a single portion of said annulus onto at least a single one of said fingers.

20. A connector band for providing an interface between a uni-directional valve and a tissue annulus, said band comprising:

a wall for location circumferentially around, and attachment to, said valve, said wall having a plurality of recesses for receiving said valve; and a plurality of fingers located circumferentially around, and attached to, said wall,

cast
C2
said fingers being adapted to secure said band to said tissue annulus.

21. The valve of claim 20, wherein said band is expandable.

22. The band of claim 20, wherein said fingers are adapted to secure said band to said tissue annulus upon expansion of said band.

23. The valve of claim 20, wherein said fingers can be expanded from a first position adjacent to said band, engaged to said tissue annulus, and returned to said first position following said engagement, thereby securing said band to said tissue annulus.

24. The valve of claim 20, wherein said fingers are formed from an elastic material.

25. The valve of claim 20, wherein said band comprises a gasket located around an outer circumference of said band, said gasket for sealing between said band and said tissue annulus.

26. The valve of claim 20, wherein said fingers are hooked.

27. The valve of claim 20, wherein said fingers are barbed.

28. The valve of claim 20, wherein said fingers are hooked and barbed.

30. The valve of claim 20, wherein said fingers are substantially perpendicular to a central longitudinal axis of said band.

31. The valve of claim 20, wherein said recesses are adapted to receive rivets, said rivets being to attach said valve to said band.

32. The valve of claim 20, wherein said recesses are adapted to receive screws, said screws being to attach said valve to said band.

33. The valve of claim 20, wherein said recesses are for receiving clips, said clips being for attaching said valve to said band.

34. A method for attaching a uni-directional valve to a tissue annulus using a connector band attached circumferentially around said valve, said band having fingers attached circumferentially around said band, said method comprising:

positioning said band within said
annulus;

engaging said fingers to said annulus
such that said fingers secure said band to said
annulus; and

attaching said valve to said band such that said valve controls the flow of fluid through said annulus.

35. The method of claim 34 the engaging further comprising engaging such that said valve

36. The method of claim 34 wherein positioning comprises expanding said band such that said band substantially fills said annulus before said engaging.

38. The method of claim 34 wherein said engaging is caused by expanding said band.

40. The method of claim 34 wherein said engaging further comprises expanding said fingers and rotating said valve to engage said fingers to said annulus.

42. The method of claim 34 said attaching further comprising riveting said valve to said band.

43. The method of claim 34 said attaching further comprising clipping said valve to said band.

1987 1986 1985 1984 1983 1982 1981 1980 1979 1978 1977 1976 1975 1974 1973 1972 1971 1970 1969 1968 1967 1966 1965 1964 1963 1962 1961 1960 1959 1958 1957 1956 1955 1954 1953 1952 1951 1950 1949 1948 1947 1946 1945 1944 1943 1942 1941 1940 1939 1938 1937 1936 1935 1934 1933 1932 1931 1930 1929 1928 1927 1926 1925 1924 1923 1922 1921 1920 1919 1918 1917 1916 1915 1914 1913 1912 1911 1910 1909 1908 1907 1906 1905 1904 1903 1902 1901 1900 1899 1898 1897 1896 1895 1894 1893 1892 1891 1890 1889 1888 1887 1886 1885 1884 1883 1882 1881 1880 1879 1878 1877 1876 1875 1874 1873 1872 1871 1870 1869 1868 1867 1866 1865 1864 1863 1862 1861 1860 1859 1858 1857 1856 1855 1854 1853 1852 1851 1850 1849 1848 1847 1846 1845 1844 1843 1842 1841 1840 1839 1838 1837 1836 1835 1834 1833 1832 1831 1830 1829 1828 1827 1826 1825 1824 1823 1822 1821 1820 1819 1818 1817 1816 1815 1814 1813 1812 1811 1810 1809 1808 1807 1806 1805 1804 1803 1802 1801 1800 1799 1798 1797 1796 1795 1794 1793 1792 1791 1790 1789 1788 1787 1786 1785 1784 1783 1782 1781 1780 1779 1778 1777 1776 1775 1774 1773 1772 1771 1770 1769 1768 1767 1766 1765 1764 1763 1762 1761 1760 1759 1758 1757 1756 1755 1754 1753 1752 1751 1750 1749 1748 1747 1746 1745 1744 1743 1742 1741 1740 1739 1738 1737 1736 1735 1734 1733 1732 1731 1730 1729 1728 1727 1726 1725 1724 1723 1722 1721 1720 1719 1718 1717 1716 1715 1714 1713 1712 1711 1710 1709 1708 1707 1706 1705 1704 1703 1702 1701 1700 1699 1698 1697 1696 1695 1694 1693 1692 1691 1690 1689 1688 1687 1686 1685 1684 1683 1682 1681 1680 1679 1678 1677 1676 1675 1674 1673 1672 1671 1670 1669 1668 1667 1666 1665 1664 1663 1662 1661 1660 1659 1658 1657 1656 1655 1654 1653 1652 1651 1650 1649 1648 1647 1646 1645 1644 1643 1642 1641 1640 1639 1638 1637 1636 1635 1634 1633 1632 1631 1630 1629 1628 1627 1626 1625 1624 1623 1622 1621 1620 1619 1618 1617 1616 1615 1614 1613 1612 1611 1610 1609 1608 1607 1606 1605 1604 1603 1602 1601 1600 1599 1598 1597 1596 1595 1594 1593 1592 1591 1590 1589 1588 1587 1586 1585 1584 1583 1582 1581 1580 1579 1578 1577 1576 1575 1574 1573 1572 1571 1570 1569 1568 1567 1566 1565 1564 1563 1562 1561 1560 1559 1558 1557 1556 1555 1554 1553 1552 1551 1550 1549 1548 1547 1546 1545 1544 1543 1542 1541 1540 1539 1538 1537 1536 1535 1534
--

a plurality of fingers located circumferentially around, and attached to, said valve, said fingers being adapted to secure said valve to said tissue annulus.

47. The valve of claim 45, wherein said fingers can be expanded from a first position adjacent to said valve, engaged to said tissue annulus, and returned to said first position following said engagement, thereby securing said valve to said tissue annulus.

49. The valve of claim 45, wherein said valve comprises a gasket located around an outer circumference of said valve, said gasket for sealing between said valve and said tissue annulus.

50. The valve of claim 45, wherein said fingers are hooked.

~~51. The valve of claim 45, wherein said fingers are barbed.~~

52. The valve of claim 45, wherein said fingers are barbed and hooked.

53. The valve of claim 45, wherein said fingers are substantially parallel to a central longitudinal axis of said valve.

54. The valve of claim 45, wherein said fingers are substantially perpendicular to a central longitudinal axis of said valve.

55. A method for attaching a uni-directional valve to a tissue annulus, said valve having fingers attached circumferentially around said valve, said method comprising:

positioning said uni-directional valve within said annulus such that said valve substantially fills said annulus; and

engaging said fingers to said annulus such that said fingers secure said valve to said annulus and such that said valve controls the flow of fluid through said annulus.

56. The method of claim 55 the engaging further comprising engaging such that said valve permits substantially only uni-directional flow through said annulus.

57. The method of claim 55 wherein said engaging further comprises expanding said fingers for engaging said fingers to said annulus.

00440" 740550

59. The method of claim 52 wherein said engaging said fingers to said annulus comprises repeatedly pulling a single portion of said annulus onto at least a single one of said fingers.